

AMENDMENTS TO THE CLAIMS

1. -6. (Cancelled)

7. (Previously Presented) A method for combining spatial and linear data in a single relational database, comprising:

providing permanent anchor sections representing physical sections of a roadway, an anchor section defining a spatial reference in road data, the anchor sections also integrated with linear data to form a road network;

associating attributes and linear events with positions in the road network;

storing linear event data related to anchor sections in a relational table;

storing road attribute data by associating each attribute with locations specified in terms of a linear referencing method (LRM);

implementing a dynamic segmentation function for conducting dynamic segmentation on a selective basis;

maintaining historical data related to anchor sections and linear event data;

enabling the creation of an interior intersection within the road data, where an interior intersection to an anchor section is defined by offsets from an end of the anchor section;

synchronizing spatial and linear data, for tying spatial data to a physical location represented by the road network; and

utilizing meta-data definitions for database elements in a data dictionary, the data dictionary defining an implementation of the relational database, resulting in an extensible relational database model.

8. (Originally Presented) A method as recited in claim 7, further comprising:
dynamically segmenting permanent anchor sections by adding interior intersections using offset information.
9. (Originally Presented) A method as recited in claim 7, wherein the database model uses an open architecture.
10. (Originally Presented) A method as recited in claim 7, wherein linear event data is stored by storing each value anchored linear event combination in a separate table record.
11. (Originally Presented) A method as recited in claim 7, wherein linear event data is stored by storing each value anchored linear event combination in a different table record with the same anchored linear events used for all event data, resulting in dynamic segmentation.
12. (Originally Presented) A method as recited in claim 7, wherein the linear event data comprises an event value; and an anchored linear event related to at least one anchor section, the anchored linear event identifying start and end offsets of an anchor section.

13. (Originally Presented) A method as recited in 12, wherein jurisdictional areas are maintained as spatial data, the method further comprising:

- storing jurisdictional area polygons in the database;
- accessing event data for a jurisdictional area using a spatial query;
- identifying anchor sections contained within a specified jurisdictional area; and
- compiling event data for the identified anchor sections using a relational query.

14. (Originally Presented) A method as recited in claim 13, further comprising:

- summarizing anchor section event data using a summary query.

15. (Originally Presented) A method as recited in claim 13, further comprising:

- summarizing anchor section event data using a report query.

16. (Originally Presented) A method as recited in claim 13, further comprising:

- pre-processing spatial queries for desired jurisdictional areas; and
- storing results of the pre-processed spatial queries for desired jurisdictional areas in a location accessible by a query program, resulting in more efficient access to event tables stored by the pre-processing queries.

17. (Originally Presented) A method as recited in claim 7, further comprising:

importing road network data in the form of a link-node network by adding additional table columns required to maintain consistency of the link node network with a spatial data engine for the road network data, the adding further comprising:

creating an entry in an anchor section table for each link in the imported road network link table;

assigning an anchor section identifier (ID) to the entry;

copying associated spatial data from the imported data into the spatial data engine road network data; and

copying other data associated with the link to define the road network.

18. (Originally Presented) A method as recited in claim 7, further comprising:
presenting data as tabular query results and reports.
19. (Originally Presented) A method as recited in claim 7, further comprising:
using standard geographic information system (GIS) tools to produce maps using data
in the road network.
20. (Originally Presented) A method as recited in claim 7, further comprising:
locking data for a desired periods of time while new data is collected.
21. (Originally Presented) A method as recited in claim 7, further comprising:
querying data in the road network by a combination of spatial and linear attributes.
22. (Originally Presented) A method as recited in claim 21, wherein the querying further
comprises:
using one of a spatial query based on a temporary area defined via a map interface or
a relational query based on jurisdictional areas; and
filtering results of the query based on event data associated with anchor sections in an
area of interest as defined by the query.
23. (Originally Presented) A method as recited in claim 21, further comprising:
summarizing event values for the associated anchor sections.

24. (Originally Presented) A method as recited in claim 21, further comprising:
mapping the associated anchor sections.
25. (Originally Presented) A method as recited in claim 21, wherein the querying launches
at least one distributed application to retrieve data from a distributed network of databases.
26. (Originally Presented) A method as recited in claim 21, further comprising:
presenting results of the querying in a simple tabular display.
27. (Originally Presented) A method as recited in claim 7, further comprising:
converting location reference data stored by a traditional linear referencing method to
an anchor linear referencing method as a collection of anchor sections and intersections that
represent the roadways, the converted data for use with the road network comprised of
anchor sections integrated with linear data.
- 28-34. (Cancelled).